

**APPLICATION  
FOR OHIO EPA SECTION 401  
WATER QUALITY CERTIFICATION**

**SR 794 ROADWAY REALIGNMENT  
CLARK COUNTY, OHIO**

**CLA-794-0.60 PID: 78677**

**Prepared For:**

**Clark County Engineer's Office  
4075 Laybourne Road  
Springfield, Ohio 45505**

**Prepared By:**

**American Structurepoint, Inc.**

**March 5, 2012**

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# APPLICATION FOR OHIO EPA SECTION 401 WATER QUALITY CERTIFICATION

Effective October 1, 1996  
Revised August, 1998

This application must be completed whenever a proposed activity requires an individual Clean Water Act Section 401 Water Quality Certification (Section 401 certification) from Ohio EPA. A Section 401 certification from the State is required to obtain a federal Clean Water Act Section 404 permit from the U.S. Army Corps Engineers, or any other federal permits or licenses for projects that will result in a discharge of dredged or fill material to any waters of the State. To determine whether you need to submit this application to Ohio EPA, contact the U.S. Army Corps of Engineers District Office with jurisdiction over your project, or other federal agencies reviewing your application for a federal permit to discharge dredged or fill material to waters of the State, or an Ohio EPA Section 401 Coordinator at (614) 644-2001.

The Ohio EPA Section 401 Water Quality Certification Program is authorized by Section 401 of the Clean Water Act (33 U.S. C. 1251) and the Ohio Revised Code Section 6111.03(P). Ohio Administrative Code (OAC) Chapter 3745-32 outlines the application process and criteria for decision by the Director of Ohio EPA. In order for Ohio EPA to issue a Section 401 certification, the project must comply with Ohio's Water Quality Standards (OAC 3745-1) and not potentially result in an adverse long-term or short-term impact on water quality. Included in the Water Quality Standards is the Antidegradation Rule (OAC Rule 3745-1-05), effective October 1, 1996, revised October, 1997 and May, 1998. The Rule includes additional application requirements and public participation procedures. **Because there is a lowering of water quality associated with every project being reviewed for Section 401 certification, every Section 401 certification applicant must provide the information required in Part 10 (pages 3 and 4) of this application.** In addition, applications for projects that will result in discharges of dredged or fill material to wetlands must include a wetland delineation report approved by the Corps of Engineers, a wetland assessment with a proposed assignment of wetland category (ies), official documentation on evaluation of the wetland for threatened or endangered species, and appropriate avoidance, minimization, and mitigation as prescribed in OAC 3745-1-50 to 3745-1-54. Ohio EPA will evaluate the applicant's proposed wetland category assignment and make the final assignment.

Information provided with the application will be used to evaluate the project for certification and is a matter of public record. If the Director determines that the application lacks information necessary to determine whether the applicant has demonstrated the criteria set forth in OAC Rule 3745-32-05(A) and OAC Chapter 3745-1, Ohio EPA will inform the applicant in writing of the additional information that must be submitted. The application will not be accepted until the application is considered complete by the Section 401 Coordinator. An Ohio EPA Section 401 Coordinator will inform you in writing when your application is determined to be complete.

Please submit the following to "Section 401 Supervisor, Ohio EPA/DSW, P.O. Box 1049, Columbus, Ohio 43216-1049:

- ☐ Four (4) sets of the completed application form, including the location of the project (preferably on a USGS quadrangle) and 8-1/2 x 11 scaled plan drawings and sections.
- ☐ One (1) set of original scaled plan drawings and cross-sections (or good reproducible copies).

**(See Application Primer for detailed instructions)**

1. The federal permitting agency has determined this project: (check appropriate box and fill in blanks)

- a. \_\_\_ requires an individual 404 permit/401 certification- Public Notice # (if known) \_\_\_\_\_
- b.  requires a Section 401 certification to be authorized by Nationwide Permit # 14.
- c. \_\_\_ requires a modified 404 permit/401 certification for original Public Notice # \_\_\_\_\_.
- d. \_\_\_ requires a federal permit under \_\_\_\_\_ jurisdiction identified by # \_\_\_\_\_.
- e. \_\_\_\_\_ requires a modified federal permit under \_\_\_\_\_ jurisdiction identified by # \_\_\_\_\_.

2. Application number (to be assigned by Ohio EPA):

3. Name and address of applicant:

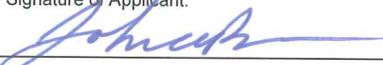
Telephone number during business hours:

*Johnathan A. Burr, PE, PS*  
*Clark County Engineer*  
*4075 Laybourne Road*  
*Springfield, Ohio 45505*

( ) \_\_\_\_\_ (Residence)  
(937) 521-1800 (Office)

3a. Signature of Applicant:

Date:



3/5/11

4. Name, address and title of authorized agent:

Telephone number during business hours:

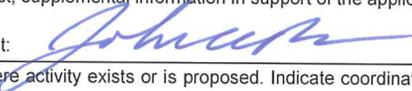
*Briana M. Hope*  
*Environmental Project Manager*  
*American Structurepoint, Inc.*  
*2550 Corporate Exchange Drive, Suite 300*  
*Columbus, Ohio 43231*

(317) 997-5652 (Mobile)  
(614) 901-2235 (Office)

4a. Statement of Authorization: I hereby designate and authorize the above-named agent to act in my behalf in the processing of this permit .  
furnish, upon request, supplemental information in support of the application.

Signature of Applicant:

Date:



3/5/11

5. Location on land where activity exists or is proposed. Indicate coordinates of a fixed reference point at the impact site (if known) and the coord datum used.

The proposed work will be conducted within an unnamed tributary (UNT) of Mud Run and an UNT of Mill Creek. UNT 2 is located adjacent Road (Springfield-Beckley Airport) in the roadside ditch along SR 794. [Section 11&5, T.4.N., R.8] Clifton, Ohio quadrangle map. [ Lat: 83.844051"] Project mapping is located in Appendix A.

**Watershed:** Great Miami River **County:** Clark **Township:** Springfield **City:** Springfield **State :** OH **Zip Code :** 45502

6. Is any portion of the activity for which authorization is sought complete? \_\_\_\_\_ Yes  No  
If answer is "yes," give reasons, month and year activity was completed. Indicate the existing work on the drawings.

7. List all approvals or certifications and denials received from other federal, interstate, state or local agencies for any structures, construction, activities described in this application.

<u>Issuing Agency</u>	<u>Type of Approval</u>	<u>Identification No.</u>	<u>Date of Application</u>	<u>Date of Approval</u>	<u>Date of Denial</u>
USACE	Provisional Waterway	LRH-2009-1084-GMR	10/03/2011	10/28/2011	
USEPA	PM 2.5	78677	05/15/2009	05/18/2009	
OEPA	MSAT	78677	05/01/2009	05/20/2009	
OHPO	Section 106	78677	08/21/2009	07/16/2006 PA	
ODNR	Ecological	78677	12/14/2009	01/15/2010	
USFWS	Endangered Species	31420-2010-F-0258	12/15/2009	01/26/2010	
ODOT	CE Document Level 3	78677	03/11/2010	03/11/2010	

8. DESCRIPTION OF THE ACTIVITY (fill in information in the following four blocks - 8a, 8b, 8c & 9)

**8. DESCRIPTION OF THE ACTIVITY (fill in information in the following four blocks - 8a, 8b, 8c & 9)**

8a. Activity: Describe the Overall Activity:

SR 794 will be relocated north of its existing alignment for security purposes associated with the Springfield-Beckley Municipal Airport/Springfield Air National Guard Base. The realignment will require the construction of one new culvert that will impact 160 feet of UNT 5 to Mill Creek, the replacement of an existing culvert (UNT 2), and the relocation of 360 linear feet of captured stream (UNT 2 to Mud Run). There is a combined total of 630 linear feet of stream impacts. The streams will be relocated slightly with the new roadway. There will be no net loss of stream length as part of the proposed project.

8b. Purpose: Describe the purpose, need and intended use of the activity:

The purpose of the project is to take out of service a portion of SR 794 in Clark County that is too close to the Springfield Air National Guard Base. The proposed realignment will provide continued vehicular access to the Springfield-Beckley Municipal Airport/Springfield Air National Guard, and will create a new alignment for a portion of SR 794.

The project is needed due to Department of Defense clearance standards. SR 794 violates updated Homeland Security measures, and the roadway must be relocated further away from the Springfield Air National Guard Base buildings. See Appendix A for related project mapping. The anticipated construction start date is Fall 2012, and construction will last approximately 12 months.

8c. Discharge of dredged or fill material: Describe type, quantity of dredged material (in cubic yards), and quantity of fill material (in cubic yards). **(OAC 3745-1-05(B)(2)(a))**

Fill materials will be added into the following streams

<b>Stream</b>	<b>Impact</b>	<b>Quantity (cyds)</b>
UNT 2	Culvert Replacement	31.7
UNT2	Natural Fill Material	47.0
UNT 5	Culvert Installation	29.5

<b>Wetland</b>	<b>Impact</b>	<b>Quantity (cyds)</b>
None	None	0.0

9. Waterbody and location of waterbody or upland where activity exists or is proposed, or location in relation to a stream, lake, wetland, wellhead or water intake (if known). Indicate the distance to, and the name of any receiving stream, if appropriate.

**STREAMS:**

See Appendix A for stream location mapping. There will be a total of **630 linear feet** of stream impacts.

UNT 1 to UNT 2: There will be no impacts to UNT 1, which is approximately 270 feet in length.

UNT 2 to Mud Run: UNT 2 is approximately 2,000 linear feet in length and flows westerly along the south side of SR 794 then turns due north before heading northwesterly and eventually flowing into Mud Run. The main substrate for the tributary is gravel and sand with some cobbles present. There will be **470 linear feet** of UNT 2 impacted as part of the proposed project.

UNT 3 to UNT 2: There will be no impacts to UNT 3 that flows northerly for approximately 760 feet and converges with UNT 2. The main substrate is sand and gravel.

UNT 4 to UNT 2: There will be no impacts to UNT 4, which is approximately 250 feet in length.

UNT 5 to Mill Creek: UNT 5 flows approximately 1,500 feet northeasterly before emptying into Mill Creek. The substrate was dominated by silt and sand. The tributary cuts through a well established timber stand and receives flow from agricultural runoff, as well as discharge from the nearby air fields (OEPA 2005). A culvert will be placed within UNT 5 to convey water under the new roadway. There will be **160 linear feet** of stream impacted.

Mill Creek: There will be no impacts to Mill Creek.

**WETLANDS:**

See Appendix A for wetland location mapping. There will be no of wetlands impacted.

Mill Creek Wetland: There will be no impacts to the Mill Creek Wetland.

Wetland A: There will be no impacts to Wetland A.

Wetland B: There will be no impacts to Wetland B.

Wetland C: There will be no impacts to Wetland C.

**10. To address the requirements of the Antidegradation Rule, your application must include a report evaluating the:**

- ☐ Preferred Design (your project) and Mitigative Technique
- ☐ Minimal Degradation Alternative(s) (scaled-down version of your project) and Mitigation Techniques
- ☐ Non-Degradation Alternative(s) (project resulting in avoidance of all waters of the state)

At a minimum, item a) below must be completed for the Preferred Design, the Minimal Degradation Alternative(s), and the NonDegradation Alternative(s), followed by completion of item b) for each alternative, and so on, until all items have been discussed for each alternative (see Primer for specific instructions). (Application and review requirements appear at **OAC 3745-1-05(B)(2)**, **OAC 3745-1-05(C)(6)**, **OAC 3745-1-05(C)(1)** and **OAC 3745-1-54**).

**See attached Alternatives Analysis**

- 10a) Provide a detailed description of any construction work, fill or other structures to occur or to be placed in or near the surface water. Identify all substances to be discharged, including the cubic yardage of dredged or fill material to be discharged to the surface water. **(OAC 3745-1-05(B)(2)(b))**
- 10b) Describe the magnitude of the proposed lowering of water quality. Include the anticipated impact of the proposed lowering of water quality on aquatic life and wildlife, including threatened and endangered species (include written comments from Ohio Department of Natural Resources and U.S. Fish and Wildlife Service), important commercial or recreational sport fish species, other individual species, and the overall aquatic community structure and function. Include a Corps of Engineers approved wetland delineation. **(OAC 3745-1-05(C) (6) (a, b) and OAC 3745-1-54)**

- 10c) Include a discussion of the technical feasibility, cost effectiveness, and availability. In addition, the reliability of each alternative shall be addressed (including potential recurring operational and maintenance difficulties that could lead to increased surface water degradation.) (OAC 3745-1-05(C)(6)(h, j-k) and OAC 3745-1-54)
- 10d) For regional sewage collection and treatment facilities, include a discussion of the technical feasibility, cost effectiveness and availability, and long-range plans outlined in state or local water quality management planning documents and applicable facility planning documents. (OAC 3745-1-05(C)(6)(i))
- 10e) To the extent that information is available, list and describe any government and/or privately sponsored conservation projects that exist or may have been formed to specifically target improvement of water quality or enhancement of recreational opportunities on the affected water resource. (OAC 3745-1-05(B)(2)(g))
- 10f) Provide an outline of the costs of water pollution controls associated with the proposed activity. This may include the cost of best management practices to be used during construction and operation of the project. (OAC 3745-01-05(C)(6)(g))
- 10g) Describe any impacts on human health and the overall quality and value of the water resource. (OAC 3745-1-05(C)(6)(c) and OAC 3745-1-54)
- 10h) Describe and provide an estimate of the important social and economic benefits to be realized through this project. Include the number and types of jobs created and tax revenues generated and a brief discussion on the condition of the local economy. (OAC 3745-1-5(B)(2)(e), and OAC 3745-1-05(C)(6)(i))
- 10i) Describe and provide an estimate of the important social and economic benefits that may be lost as a result of this project. Include the effect on commercial and recreational use of the water resource, including effects of lower water quality on recreation, tourism, aesthetics, or other use and enjoyment by humans. (OAC 3745-1-05(B)(2)(e,f), and OAC 3745-105 (C) (6) (e))
- 10j) Describe environmental benefits, including water quality, lost and gained as a result of this project. Include the effects on the aquatic life, wildlife, threatened or endangered species. (OAC 3745-1-05 (B)(2)(e,f), OAC 3745-1-05 (C)(6)(b) and OAC 3745-1-54)
- 10k) Describe mitigation techniques proposed (except for the Non-Degradation Alternative):
  - Describe proposed Wetland Mitigation (see OAC 3745-1-54 and Primer)
  - Describe proposed Stream, Lake, Pond Mitigation (see Primer)

11. Application is hereby made for a Section 401 Water Quality Certification. I certify that I am familiar with the information contained in this application and, to the best of my knowledge and belief, such information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities or I am acting as the duly authorized agent of the applicant.

\_\_\_\_\_  
Signature of Applicant

3/5/12  
Date

\_\_\_\_\_  
Signature of Agent

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly *authorized agent* if the statement in Block 3 has been filled out and signed.

**Do not send a certification processing fee with this application. The appropriate fee will be assessed when a certification is issued.**

APPLICATION FOR OHIO EPA  
SECTION 401 WATER QUALITY CERTIFICATION  
SR 794 Relocation  
CLA-794-0.60 PID: 78677

ALTERNATIVES ANALYSIS (Block 10)

**GENERAL**

During the preliminary planning phase of the project the County evaluated 11 different alternatives and associated variations of those alternatives in addition to the no build alternative. See Alternative Alignment Project mapping in Appendix A.

The County Engineer selected the preferred alignment based on the review and recommendations of the Clark County-Springfield Transportation Coordinating Committee (TCC).

First, The TCC recommended Alternative D1 as the preferred alternative based on the following factors:

- Met Department of Defense requirements relative to force protection;
- Maintained a connection between US 68 and SR 72;
- Did not impact future development of the airport/airbase; and
- Did not adversely impact mobility and emergency response time.

Secondly, Alternative D1 ranked the highest among all the conceptual alternatives when weighed against measurable evaluation criteria such as construction costs, environmental impacts, and community impacts.

Third, Alternative D1 had a logical termini and independent utility which meant that the improvement was not dependent on the completion of other projects.

Finally, Alternative D1 satisfied the public concerns. The local residents wanted an alternative that did not relocate residents, did not add an additional access point on US 68, and one that stayed primarily upon the City of Springfield's property.

Definitions:

Preferred Design: Alternative D1 from the June 2006 Alternatives Study Report.

Minimal Degradation Alternative: Alternative D1 from the June 2006 Alternatives Study Report modified. The modifications include replacing the culvert conveying UNT 2 to Mud Run and the culvert conveying UNT 5 to Mill Creek with a bridge structure that spans across the streams.

Non-Degradation Alternative: Alternative B from the June 2006 Alternatives Study Report.

**Block 10a) Description of construction work**

**PREFERRED ALTERNATIVE:**

**Project Details:** This alternative vacates a portion of SR 794 west of Mill Creek and east of Peacock Road. Peacock Road will terminate north of its existing location at its new intersection with SR 794. The future entrance to the Springfield-Beckley Airport and the west entrance to the OANG base will be a newly created entrance off of SR 794 slightly west of its current location. SR 794 will leave its current alignment and proceed in a northeasterly direction beginning at mile 0.60 until it rejoins SR 794 west of Mill Creek at mile 1.80. See project alternative mapping in Appendix A. There will be two culverts installed as part of this

alternative. One is a replacement (UNT 2) and the other is a new culvert (UNT 5) for the proposed alignment. The realignment and grading of the roadway will also require the relocation of approximately 360 linear feet of UNT 2 as it is captured in a roadside ditch.

The new roadway alignment will provide two 12 foot wide lanes with ten foot shoulders that slope into a roadside ditch on each side of the roadway. The existing 54 foot long 72 inch by 42 inch corrugated metal pipe conveying UNT 2 under SR 794 will be replaced with a 48 inch by 76 inch culvert 82 feet long. An additional 14 linear feet of stream channel will be impacted along the north end of the culvert by the installation of a concert slab and rock channel for erosion control purposes. Approximately 31.7 cyds of fill (concrete slab, headwall, rock channel, and clean earthen fill) will be placed below the ordinary high water mark of UNT 2 for construction of the headwall and erosion control purposes. An additional 14 linear feet of streambed will be disturbed for incidental work and culvert installation purposes, these areas will be returned to original elevations and contours once the culvert is installed.

A new 54 inch culvert approximately 122 feet long will be required to under SR 794 to provide drainage under the roadway's new alignment along UNT 5. An additional 12 linear feet of stream channel will be impacted along the north end of the culvert by the installation of a concert slab and rock channel for erosion control purposes. Approximately 29.5 cyds of fill (concrete slab, headwall, rock channel, and clean earthen fill) will be placed below the ordinary high water mark of UNT 5 for construction of the headwall and for erosion control purposes. An additional 26 linear feet of streambed will be disturbed for incidental work and culvert installation purposes, these areas will be returned to original elevations and contours once the culvert is installed.

In addition, approximately 360 linear feet of UNT 2 will be shifted to the south to accommodate the required roadway shoulders and sideslopes. At this location UNT 2 exists as a captured stream and is contained within the roadside ditch running parallel to the south side of SR 794. This portion of UNT 2 will be filled with natural soils (47 cyds), and a new two-staged channel will be created to the south in effort to offset impacts and maintain a no net loss of stream channel.

**Description of fill material:** There will be a total of 108.2 cubic yards of material placed within streams as part of the preferred alternative. The fill materials will be natural fill materials that will originate from redistributing the existing soils.

**Description of dredge material:** No material will be dredged as part of this alternative.

#### **MINIMAL DEGRADATION ALTERNATIVE:**

**Project Details:** This alternative vacates a portion of SR 794 west of Mill Creek and east of Peacock Road. Peacock Road will terminate north of its existing location at its new intersection with SR 794. The future entrance to the Springfield-Beckley Airport and the west entrance to the OANG base will be a newly created entrance off of SR 794 slightly west of its current location. SR 794 will leave its current alignment and proceed in a northeasterly direction beginning at mile 0.60 until it rejoins SR 794 west of Mill Creek at mile 1.80. See project alternative mapping in Appendix A. There will be two bridges installed as part of this alternative. A single span bridge over UNT 2 will replace an existing culvert and a new 3 span bridge over UNT 5 will be required for a new crossing of UNT5. The realignment and grading of the roadway will also require the relocation of approximately 360 linear feet of UNT 2 as it is captured in a roadside ditch.

The new roadway alignment will provide two 12-foot wide lanes with ten foot shoulders that slope into a roadside ditch on each side of the roadway. A new single span bridge 39 feet wide will replace the existing 54 foot long 72 inch by 42 inch corrugated metal pipe conveying UNT 2 under SR 794. The new structure will completely span UNT 2 avoiding all impacts at this crossing. The proposed bridge over UNT 5 (new crossing) is a 75 foot long three span structure approximately 40 feet wide. This structure will also completely span UNT 5 avoiding all impact at this crossing.

In addition, approximately 360 linear feet of UNT 2 will be shifted to the south to accommodate the required roadway shoulders and sideslopes. At this location UNT 2 exists as a captured stream and is contained within the roadside ditch running parallel to the south side of SR 794. This portion of UNT 2 will be filled with natural soils (47 cydss), and a new two-staged channel will be created to the south in effort to offset impacts and maintain a no net loss of stream channel.

**Description of fill material:** There will be a total of 47.0 cubic yards of material placed within UNT 2 as part of the minimal degradation alternative. The fill materials will be natural fill materials that will originate from redistributing the existing soils.

**Description of dredge material:** No material will be dredged as part of this alternative.

#### **NON-DEGRADATION ALTERNATIVE:**

**Project Details:** This alternative will completely abandon SR 794 between Peacock Road and West Sparrow Road just east of Mill Creek. Traffic will proceed north on Peacock Road, will turn right onto West Sparrow Road, turn right as West Sparrow Road turns to the south where it rejoins with SR 794. This adds an additional 1.13 miles (1.7 minutes) to each east-west trip. Each of the existing county roads is not designed for truck traffic as is SR 794. Therefore, each roadway would require full depth replacement to bring the roadways up to design standards for increased traffic and truck loads. This alternative will utilize Peacock Road as the future entrance to the Springfield-Beckley Airport and the west entrance to the OANG base. See project alternative mapping in Appendix A.

**Description of fill material:** No fill materials will be added as part of this alternative.

**Description of dredge material:** No material will be dredged as part of this alternative.

#### Block 10b) Biological and Physical Impacts

##### **How will the alternatives adversely impact animal life?**

The preferred and minimum degradation alternatives will remove approximately 5.2 acres out of 12.8 acres of forested land within the project area. This will require some animal life to relocate to others forested areas outside of the project area. There will be no permanent impacts, only temporary as they relocate. The trees will be removed in the non-roosting months. This will prevent disturbing nesting birds or bats as they rear their young in the spring and summer time.

The non-degradation alternative will have no direct impacts on animal life as all of the roadways are already present.

##### **How will the alternatives adversely impact plant life?**

The preferred and minimum degradation alternatives will impact plant life by the removal of approximately 300 trees greater than eight inches in diameter within the project area. The surrounding areas have been previously deforested for agricultural uses. There will still be 60

percent of the forested area remaining once construction has been completed for either alternative.

The non-degradation alternative will have no direct impacts to plant life as all of the roadways are already present.

**How will the alternatives adversely impact rare, threatened and endangered species?**

Federally listed or proposed as endangered species whose ranges fall within the project area are the Indiana bat (*Myotis sodalis*) and rayed bean mussel (*Villosa fabalis*). The Eastern massasauga (*Sistrurus catenatus*) is a candidate species, and the Eastern prairie fringed orchid (*Platanthera leucophaea*) is currently listed as threatened. Finally, ODNR indicated that the upland sandpiper (*Bartramia longicauda*), State-listed threatened species, inhabits portions of the adjacent Springfield Airport and OANG base.

Indiana bat: The preferred and minimum degradation alternatives will require the removal of 17 trees offering potential summer roost habitat for the Indiana bat. As the trees will be removed during the appropriate season, no direct take of the Indiana bat is expected. The surrounding area offers many suitable roost trees. ODOT OES determined that the project may affect, and is likely to adversely affect this species. As provided for in the Programmatic Biological Opinion for the Indiana bat (issued 01-27-2007), the project will avoid, minimize and or mitigate for the adverse effects by (1) prohibiting tree removals from 04-01 to 09-30 (Avoidance Measure A-1) and (2) applying credits for the Indiana bat summer ecology study (Mitigation Measure M-6). Additionally, as requested by USFWS, the project team will be instructed to save large dead or dying trees within the project limits to the extent possible. ODNR and USFWS coordination documents can be seen in Appendix C.

No impacts to the Indiana bat are anticipated with the non-degradation alternative, since the project work will occur on existing roadways.

Eastern prairie fringed orchid: No suitable habitat for the species was identified. ODOT OES determined that the project will have no effect on this species. Therefore, there are no impacts anticipated for the preferred, minimum, and non-degradation alternatives.

Eastern massasauga rattlesnake: No known populations of this snake have been identified near the project area and the potentially suitable habitat for the snake has been previously disturbed. ODOT OES determined that the project will have no effect on this species. Therefore, there are no impacts anticipated for the preferred, minimum, and non-degradation alternatives.

Rayed bean mussel: No mussels or suitable habitat were identified in any of the unnamed tributaries within the project area. Therefore, there are no impacts anticipated for the preferred, minimum, and non-degradation alternatives.

Upland sandpiper: In the vicinity of the reported records of the upland sandpiper, the proposed work will occur on and adjacent to roadways; such areas do not offer habitat for this species. ODOT OES determined that the project is not expected to impact this species or its habitat. Therefore, there are no impacts anticipated for the preferred, minimum, and non-degradation alternatives.

### **How will the alternatives adversely impact aquatic habitat and physical characteristics of the water body and adjacent areas?**

The preferred alternative will impact 630 linear feet of two different streams (UNT 2 and UNT5). Both these streams cross the roadway perpendicularly under the current and proposed roadway. A portion of UNT 2 is captured in a roadside ditch running parallel to the south side of SR 794. The streams that cross perpendicularly will be impacted by the placement of culverts under the roadway. Aquatic habitat will be impacted temporarily as sediment is stirred up through the placement of the culverts. Best management practices (BMP) will be performed to minimize these impacts. A BMP the contractor may utilize would be to place a temporary dam across the stream and pump the water around the culvert placement while the culvert is being installed. UNT 2 is captured within a roadside ditch and will be impacted by the required grading of the proposed roadway shoulders. A portions of the UNT 2 (360 linear feet) will be filled with natural soils, and a new two-staged channel (360 linear feet) will be created to offset the impacts on-site. Aquatic habitat in the relocated channel will be impacted temporarily as the flowline of UNT 2 is shifted south and new habitat is established in the two-stage channel. The proposed two-stage channel portion of UNT 2 will be allowed to function more freely as a natural stream unlike the existing reach that is captured in a non sinuous roadside ditch.

The minimum degradation alternative will impact approximately 360 linear feet of UNT 2. A portion of UNT 2 is captured in a roadside ditch running parallel to the south side of SR 794. A portion of the UNT 2 (360 linear feet) will be filled with natural soils, and a new two-staged channel (360 linear feet) will be created to offset the impacts on-site.

Aquatic habitat will be impacted temporarily as the flowline of UNT 2 is shifted south and new habitat is established in the two-stage channel. The proposed two-stage channel portion of UNT 2 will be allowed to function more freely as a natural stream unlike the existing reach that is captured in a non sinuous roadside ditch.

The non-degradation alternative will have no impacts on aquatic habitat as the roadway is currently constructed.

### **How will the alternatives adversely impact flow patterns of surface water?**

None of the three alternatives will adversely impact surface water flow patterns. Each alternative will maintain the existing flow patterns.

### **WETLANDS:**

#### Wetland Quality (Ohio Rapid Assessment Method for Wetlands)

Data for all delineated wetlands was completed by the Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) in accordance with the Ohio Environmental Protection Agency (OEPA) methodology (2001). ORAM is designed to determine wetland categories as defined in Ohio's Wetland Antidegradation Rule (OAC Rule 3745-1-54). Wetlands are categorized as Category 1 through 3, based on a score of 1 through 100.

The contractor will acquire an OEPA construction stormwater permit prior to start of construction. As specified in the design of each alternative, post-construction runoff rates will not exceed the pre-construction runoff rates.

Several wetlands were delineated during the field investigation. Delineation was executed using topographic, vegetative, and hydrologic indicators to identify wetlands as outlined in the USACE manual. One large wetland adjacent to the southwest bank of Mill Creek was delineated as well as three smaller wetlands. The wetlands are summarized below.

### Mill Creek Wetland

The Mill Creek Wetland occupies a natural depression located between the farmed field west of the creek and the western bank of the creek comprising approximately 4.74 acres. A slight rise in elevation along the bank of the creek strengthens this topographic depression and serves as a levee to keep the area moist. The area is composed of two different wetland types: forested and scrub/shrub. A wetland dominated by jewel weed (*Impatiens capensis*) and sandbar willow (*Salix exigua*) saplings occupies a portion of an area with Carlisle Muck undrained soils. The remaining portions of the wetland occupy a region of Sloan silt loam, sandy substratum occasionally flooded with vegetation dominated by yellow avens (*Geum aleppicum*) and green ash (*Fraxinus pennsylvanica*).

The ORAM score for this wetland was 32, indicating this wetland is a Category 1 or Category 2 Gray Zone Wetland. This wetland is hydrologically connected to Mill Creek, and will not be impacted by any of the alternatives being evaluated in this document.

### Wetland A

Wetland A is located approximately one-half mile north of the intersection of SR 794 and Peacock Road. The wetland is approximately 0.22-acre in size and is located along the eastern edge of the investigational area in an old farm lot. This is a predominately emergent wetland.

The ORAM score for this wetland was 10, indicating this wetland is a Category 1. This wetland is within an old farm lot and appears to be hydrologically isolated, and will not be impacted by any of the alternatives being evaluated in this document.

### Wetland B

Wetland B is located along the west side of Peacock Road just before UNT 4 in a residential yard. The wetland is approximately 0.04 acre in size and is a tributary to the UNT 4 to UNT 2 to Mud Creek. The wetland is located on the north side of the driveway just south of UNT 4.

The ORAM score for this wetland was 18, indicating this wetland is a Category 1 Wetland. This wetland is hydrologically connected to UNT 4, and will not be impacted by any of the alternatives being evaluated in this document.

### Wetland C

Wetland C is located at the confluence of UNT1 and UNT 3 with UNT 2 to Mud Creek. The wetland occupies approximately 0.01 acre and is located just south of SR 794.

The ORAM score for this wetland was 26, indicating this wetland is a Category 1 Wetland. This wetland is hydrologically connected to UNT 1, UNT 2, and UNT 3 as it is situated at the confluence of these streams, and will not be impacted by any of the alternatives being evaluated in this document.

### **STREAMS:**

Data for all streams was collected by wading or walking along a portion of the stream to gather data needed for completion of the primary Headwater Habitat Evaluation Index (HHEI) and the Qualitative Habitat Evaluation Index (QHEI) data sheets.

### UNT 1 to UNT 2

UNT 1 flows northeasterly into UNT 2 at the culvert beneath SR 794. The tributary's main substrate was silt and leafy vegetation from cattails present in the area. An HHEI was performed and the tributary was classified as a Modified Class II Primary Headwater Habitat (PHWH) with a score of 62. The likely source of water for the tributary is storm water discharge from the nearby Springfield Beckley Municipal Airport (OEPA 2005). See Appendix A for stream

location mapping. Photographs of UNT 1 can be viewed in Appendix B. These photographs are represented on the photographic log as picture points 5 and 6 and data points 3 and 4.

There will be no impacts to UNT 1, which is approximately 270 feet in length for any of the three alternatives being evaluated in this report.

#### UNT 2 to Mud Run

UNT 2 flows westerly along SR 794 then turns due north before turning northwesterly and eventually flowing into Mud Run. The main substrate for the tributary is gravel and sand with some cobbles present. An HHEI performed for the tributary identified the area downstream of CLA 794 as a Modified Class II stream with an HHEI score of 53. The reach upstream of CLA 794 was a Modified Class I stream with an HHEI score of 22. The likely source of flow is runoff and discharge from the nearby airport and air base. Several field tiles empty into the tributary as well. The stream supported a good community of macroinvertebrates. However, the stream was found to be in non-attainment with its WWH classification as a study of biotic species lacked a large community of fish suggesting intermittent water levels and flow. OEPA is currently maintaining the WWH classification until a PHWH study can be completed (OEPA 2005). The HHEI data sheets for both the upstream and downstream reaches of UNT 2 and the associated aerial map can be found in Appendix E. Photographs of UNT 2 can be viewed in Appendix B. These photographs are represented on the photographic log as picture points 12, 14, and 15.

UNT 2 is approximately 2,000 linear feet in length. The preferred alternative will impact 470 linear feet of UNT 2 with the replacement of the existing culvert under SR 794 and the realignment of the roadside ditch, which contains UNT 2. The minimum degradation alternative will impact 360 linear feet of UNT 2 with the realignment of the roadside ditch, which contains UNT 2. Finally, the non-degradation alternative will have no impacts to UNT 2 as it will be maintained on current roadways.

#### UNT 3 to UNT 2

UNT 3 flows northerly and converges with UNT 2. The main substrate is sand and gravel. A HHEI performed for the tributary classified it as a Modified Class III PHWH with a score of 71. Stormwater and discharge from the nearby air fields are the likely source of flow for the stream (OEPA 2005). Photographs of UNT 3 can be viewed in Appendix B. These photographs are represented on the photographic log as picture points 7 and 8.

UNT 3 flows approximately 760 feet before it converges with UNT 2. There will be no stream impacts at the point where UNT 3 ties into UNT 2 for the preferred, minimum degradation, or the non-degradation alternatives.

#### UNT 4 to UNT 2

UNT 4, which is approximately 250 feet in length, flows westerly in a poorly defined channel through several residential yards and agricultural fields before emptying into UNT 2. No flow was present during investigation but a soil sample revealed slight saturation. Main channel substrate was silt and gravel where a defined channel existed. An HHEI was performed, and the tributary was classified as a Modified Class II PHWH tributary with a score of 46. Flow is primarily from ditches along Peacock Road and natural drainage from fields and residential yards. Photographs of UNT 4 can be viewed in Appendix B. These photographs are represented on the photographic log as picture point 28.

There will be no impacts to UNT 4 for any of the three alternatives being evaluated.

### UNT 5 to Mill Creek

UNT 5, which is approximately 1,500 linear feet in length, flows northerly before turning northeasterly and emptying into Mill Creek. The substrate was dominated by silt and sand. The tributary cuts through a well-established timber stand and receives flow from agricultural runoff, as well as discharge from the nearby air fields (OEPA 2005). An HHEI was performed and the tributary was classified as a Modified Class II PHWH with a score of 56. The stream likely supports a fair community of macroinvertebrates but lacks the permanent habitat features to support continued growth due to its high silt load and intermittent flow. The HHEI data sheet and associated aerial map can be found in Appendix E for UNT5. Photographs of UNT 5 can be viewed in Appendix B. These photographs are represented on the photographic log as picture points 32, 33, and 42.

UNT 5 is approximately 1,500 linear feet in length. The preferred alternative will require a new culvert be placed under the realigned SR 794, impacting approximately 160 linear feet of UNT 5. The minimum degradation alternative will have no impacts to UNT 5 since the proposed bridge spans the existing stream. Finally, the non-degradation alternative will have no impacts to UNT 5 as it will be maintained on current roadways.

### **IMPACT SUMMARY:**

<b>Impacts:</b>	<b>Preferred Alternative</b>	<b>Minimum Degradation Alternative</b>	<b>Non-Degradation Alternative</b>
Streams	630 lft	360 lft	0.00 lft
Wetlands	0.00 ac	0.00 ac	0.00 ac

### **LAKES/PONDS:**

There are no lakes or ponds associated with any of the alternatives being evaluated.

### Block 10c) Technical Feasibility, Cost Effectiveness and Availability

**PREFERRED ALTERNATIVE:** This alternative is technically feasible and construction/fabrication methods are available. The preferred alternative vacates a portion of SR 794 west of Mill Creek and east of Peacock Road and shifts the roadway north. The Clark County Engineer, as well as the Clark County-Springfield Transportation Coordinating Committee, has concluded that the alternative is cost-effective.

The estimated cost for the preferred alternative is \$3.0 million.

**MINIMUM DEGRADATION ALTERNATIVE:** This alternative is technically feasible, and construction/fabrication methods are available. The minimal degradation alternative would utilize bridges instead of culverts to completely span UNT 1 and UNT5 minimizing the total linear footage of stream channel impacts. Operational and maintenance costs would likely be higher than the preferred alternative and include higher costs associated with annual inspections and occasional repairs. While construction of this alternative is technically possible; it is not cost effective considering the small amount of new stream channel encapsulation (145 linear feet) it would avoid.

It is estimated that the construction cost associated with the minimum degradation alternative is \$3.6 million.

**NON-DEGRADATION ALTERNATIVE:** This alternative is technically feasible and construction/fabrication methods are available. This alternative will utilize Peacock Road as the future entrance to the Springfield-Beckley Airport and the west entrance to the OANG base. The non-degradation alternative would add an additional 1.13 miles (1.7 minutes) to each east-west trip. Each of the existing county roads (Peacock and Sparrow) are not designed for truck traffic as is SR 794. Therefore, each roadway would require full depth replacement and full depth shoulder widening to bring the roadways up to design standards for increased traffic and truck loads. In addition, this alternative does not meet the long range plan for the OANG base and would not allow for appropriate emergency access.

The estimated cost for the non-degradation alternative based upon the 2006 Alternative Evaluation Analysis was \$4.9 million.

#### Block 10d) Sewage Projects

This section is not applicable to the proposed roadway relocation project.

#### Block 10e) Other Related Projects

There are no other related projects that would be associated with this project or any of its selected alternatives. The project is being performed to bring the Ohio Air National Guard (OANG) base within the Department of Defense regulations regarding the minimum separation distance from a military building to a roadway. The OANG must be in conformance with the regulations prior to the next Base Realignment and Closure (BRAC) review.

#### Block 10f) Water Pollution Controls

Water pollution controls are most applicable to the proposed project during the construction phase. Best Management Practices (BMP) will be required of the contractor for erosion and sediment control. The costs would be comparable for any build alternative.

#### Block 10g) Human Health Impacts

**ALL ALTERNATIVES:** The proposed project alternatives will have no negative impact on human health. Each build alternative will provide a beneficial impact to the welfare of the local residents, commuters, and employees that utilize the OANG base and travel between US 68 and SR 72. The overall water quality of the UNTs will not be impacted due to any temporary and localized increase in suspended solids due to construction activities.

#### Block 10h) Social and Economic Benefit

**ALL ALTERNATIVES:** Each build alternative will provide a beneficial impact to the welfare of the workers of the OANG base, local residents and commuters that utilize SR 794. The alternatives will provide an indirect benefit to the community by maintaining the existence of the OANG and the jobs associated with its operation, and the continuity of major thoroughfares. This includes providing continued access to the OANG and Springfield-Beckley Airport, and I-70.

Minimal benefits could be expected to commercial opportunities as access to/from the airport/airbase is maintained. With a construction schedule of 12 months and construction costs in the vicinity of \$3 million, the alternatives will provide steady jobs during the construction of the project. The nature of the project will not generate revenue.

Overall, the roadway project will have minimal long-term impacts on the economy, but without the project the local economy will lose all the revenue generated by the OANG base being in operation, which is approximately \$119 million annually per the Springfield ANG 2009 Economic Impact Analysis.

#### Block 10i) Social and Economic Losses

**ALL ALTERNATIVES:** No long-term social and economic benefits will be lost as a result of any of the roadway alternatives being evaluated for this project. Short-term losses will include detours of vehicular and pedestrian traffic during the construction schedule.

However, if the proposed project does not move forward, the City of Springfield and Clark County project long-term social and economic losses. The current OANG jobs will be lost and the projected 1,000 new jobs from airport and OANG base related support industries will also be lost. The Springfield ANG Economic Impact Analysis estimated the closure of the base would have a \$119 million annual economic loss to the local economy.

#### Block 10j) Environmental Impacts

**PREFERRED AND MINIMUM DEGRADATION ALTERNATIVES:** Overall, the alternative will not have a negative impact on the water quality of Mud Run or Mill Creek.

Localized water quality will be impacted due to a potential increase in suspended solids as a result of placing new culverts into UNT 2 and UNT 5. This impact will occur only during the actual placement of the culvert into the stream channel. The contractor could utilize an inflatable dam and pump the water around the culvert during culvert installation to reduce suspended solids.

The loss of approximately 300 trees within the project area is anticipated with both the preferred and minimum degradation alternatives. Seventeen of those possess characteristics that would provide suitable roosting habitat for the Indiana bat. No other environmental losses that would impact other federal/state listed species are expected.

**NON-DEGRADATION ALTERNATIVE:** There will be no environmental impacts associated with this alternative as it is on existing roadways.

#### Block 10k) Mitigation Techniques - Wetlands

**PREFERRED ALTERNATIVE:** There are no wetlands being impacted as part of this project.

**MINIMUM DEGRADATION ALTERNATIVE:** There will be no known wetlands impacted as part of this project.

**NON-DEGRADATION ALTERNATIVE:** There will be no known wetlands impacted as part of this project.

#### Block 10k) Mitigation Techniques – Stream

**ALL ALTERNATIVES:** An Erosion and Sediment Control Plan using Best Management Practices (BMP) for erosion and sediment control will be prepared at least 45 days prior to the start of construction. The plan will be implemented as the first work item of the construction